

**ABSTRACT OF THE DISCLOSURE**

**OPTICAL RECEIVER, OPTICAL RECEIVING METHOD AND OPTICAL  
TRANSMISSION SYSTEM**

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An optical transmission system comprising transmitter, link and receiver. At the receiver a decoder is connected to receive the encoded optical signal from the link and decode it according to a decoding signature carried by the decoder that is complementary to the encoding signature at the transmitter coder. The signal is thus  
10 decoded to produce a decoded optical signal having a broadened autocorrelation peak and an unwanted background pedestal component. After amplification (EDFA3) the decoded signal is supplied through a non-linear optical element in the form of a non-linear optical loop mirror (NOLM). The NOLM enhances the autocorrelation peak intensity relative to the pedestal and compresses its pulse width, to return the pulse  
15 width to the same or narrower than prior to coding at the transmitter. This approach provides a simple passive way of improving the reception quality of an optical signal that has been decoded after spread-spectrum encoded transmission such as optical code division multiple access (OCDMA). The receiver performs this function without the need for complicated optical gating circuitry.

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Figure 7